

## Science of Learning: Evidence-based teaching in the clinical supervision classroom

By: [L. DiAnne Borders](#)

**This is the peer reviewed version of the following article:**

Borders, L. D. (2019). Science of Learning: Evidence-based teaching in the clinical supervision classroom. *Counselor Education and Supervision*, 58, 64-79.

**which has been published in final form at <https://doi.org/10.1002/ceas.12124>. This article may be used for non-commercial purposes in accordance with [Wiley Terms and Conditions for Use of Self-Archived Versions](#).**

**\*\*\*© 2019 by the American Counseling Association. Reprinted with permission. No further reproduction is authorized without written permission from Wiley. This version of the document is not the version of record. Figures and/or pictures may be missing from this format of the document. \*\*\***

### **Abstract:**

Although clinical supervision is widely viewed as an educational process, counseling doctoral students may lack relevant background in pedagogy. In response to calls to incorporate learning theories and principles into supervision instruction, 7 evidence-based science of learning principles as well as examples from 1 doctoral supervision course are described.

**Keywords:** clinical supervision | supervision education | science of learning | evidence-based teaching | counselor education

### **Article:**

Recently, there has been focused attention on the need to enhance considerations of counselor education pedagogy. Authors (e.g., Barrio Minton, Wachter Morris, & Yaites, 2014; Kleist, 2016; Tangen & Borders, 2017) have noted that the importance of theory in driving counselors' work with clients parallels the importance of instructional theories for grounding counselor educators' teaching. For both professional activities, a deep understanding of relevant theories and their empirical support strengthens professionals' intentionality around what approaches are appropriate and, perhaps even more important, why and how to employ those approaches in ways that augment their effectiveness.

Within this recent literature, perhaps most pointed are the findings from Barrio Minton et al.'s (2014) content analysis of 10 years of articles on teaching and learning in counseling journals. They located 230 peer-reviewed articles and examined their focus (e.g., content or techniques, master's or doctoral level), pedagogical basis, and methodologies. Regarding pedagogy, they rated the articles based on the degree to which they consistently integrated learning theories and instructional research. Less than 15% met the consistent integration criterion; another 12% were minimally grounded in pedagogical foundations. Of the learning theories named in the articles,

Barrio Minton et al. noted reliance on theories based in social and cultural diversity (e.g., transformative learning, liberation and feminist pedagogies). Although they supported the attention to theories highlighting cultural issues, they noted that some of these theories lack a substantive research base. Traditional learning theories (e.g., cognitive), which are supported by decades of research (cf. Schunk, 2016), were named in only one article.

Although unsettling, these findings reflect larger concerns in higher education about faculty members' seeming reluctance to adopt evidence-based teaching practices based in pedagogical literature (e.g., Blumberg, 2011). Concern within counselor education led to the appointment of a taskforce in 2013 by the Association for Counselor Education and Supervision (ACES) leadership. This taskforce, charged with developing best practice guidelines for teaching, produced an extensive report disseminated to ACES membership in 2016 (ACES Teaching Initiative Taskforce, 2016). Sheely-Moore (2016) found no empirical studies exploring the use of learning theories in counselor education. Sheely-Moore provided a brief overview of several theories of adult learning (e.g., andragogy, self-directed learning, experiential and transformational learning theories); no traditional learning theories were included.

Embracing traditional learning theories and evidence-based teaching practices could be a challenging task for counselor educators, whose training background is often more clinical than pedagogical (Baltrinic, Barrio Minton, & Wood, 2016). Of the number of traditional theories that exist (Schunk, 2016), study of only cognitive learning theories, and of the numerous learning processes within them (e.g., cognitive load, information processing; see Tangen & Borders, 2017), could be overwhelming.

A more manageable yet comprehensive approach may be to focus on evidence-based learning principles that reflect research on learning theories and their application in teaching. Malott, Hall, Sheely-Moore, Krell, and Cardaciotto (2014) drew from Bain's (2004) study of 60 outstanding college teachers to organize an overview of evidence-based teaching practices in three areas: creating effective learning environments, structuring intentional learning experiences, and assessing teaching effectiveness. The authors suggested strategies for a variety of master's-level courses. Importantly, many of Bain's suggestions also reflect key findings from the science of learning (ScoL).

ScoL refers to a vast and growing umbrella of research (Benassi, Overson, & Hakala, 2014) that is both international and interdisciplinary, including studies based in cognitive, social, and developmental psychology, education, anthropology, sociology, linguistics, philosophy, computer science, and neuroscience (Bransford, Brown, & Cocking, 2000). ScoL researchers were instrumental in shifting the focus from teacher-centered to learner-centered education, with the ultimate goal of designing educational environments that help "people learn more deeply and more effectively" (Sawyer, 2014, p. 1). ScoL researchers study both novices and experts, with a particular focus on how to help novices move toward expertise (Sawyer, 2014). Given their foundation in Vygotsky's (1978) work, they view the classroom as a social and cultural environment in which students learn through "collaboration and conversation" (Sawyer, 2014, p. 10) with peers, along with the teacher's intentionally guided instruction (e.g., scaffolding). Such instruction is designed to encourage reflection and enhance development of deeper and more

elaborate understanding of new knowledge, accurate transfer of learning, and effective application in new and novel situations.

Several groups have worked to make ScoL implications for education accessible to teachers in K–12 schools (e.g., Bransford et al., 2000; Deans for Impact, 2015) as well as those in higher education (e.g., Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010; Benassi et al., 2014; Lang, 2016). Of these, Ambrose et al. (2010) received the most attention for application to professional development programs for faculty (e.g., Swoboda, 2014). Relevance of their principles to counselor education is supported in several ways. Based on their consultations with instructors from a wide range of disciplines, Ambrose et al. concluded that the ScoL principles were (a) domain-independent—relevant across subject areas; (b) experience-independent—applicable across all educational levels and instructional types (e.g., classrooms and smaller groups); and (c) cross-culturally relevant, although cultural considerations do influence how the principles are applied. In addition, Ambrose et al. was cited extensively (but not explored specifically) in the ACES Teaching Initiative Taskforce (2016) report, thus suggesting the utility of their ScoL principles for enhancing counselor education pedagogy.

Although exploring application of Ambrose et al.'s (2010) ScoL principles in almost any counselor education course would be informative, doctoral-level courses may be an ideal starting point. Doctoral-level instructors can transmit evidence-based teaching principles in several ways, from readings and discussions during course work to modeling application within their instructional approaches. One doctoral course lacking attention is clinical supervision. In fact, Barrio Minton et al. (2014) did not find a single article on teaching supervision in counseling journals. Bernard and Luke (2015) reported similar results in their 10-year review of clinical supervision articles; they highlighted the lack of attention to pedagogical methods for supervisor education. Researchers of supervisor development (e.g., Borders, Welfare, Sackett, & Cashwell, 2017; Gazzola, DeStefano, Thériault, & Audet, 2013; Gosselin, Barker, Kogan, Pomerleau, & Pitre d'Iorio, 2015; Watkins, 2017) have voiced the same conclusion. Of relevance, instruction in learning theories and principles is specified in supervision training best practices in counseling (Borders et al., 2014) and supervisor competencies in psychology (Falender et al., 2004) but are not well developed (Olds & Hawkins, 2014). Exploring application of ScoL principles seems an important next step in bringing evidence-based teaching to the clinical supervision classroom.

Accordingly, the purpose of this article is to apply Ambrose et al.'s (2010) extrapolations of ScoL principles in the context of the clinical supervision classroom. Below, I describe Ambrose et al.'s seven principles for effective teaching and learning and their suggestions for implementation, followed by descriptions of specific activities I have employed in my efforts to incorporate ScoL principles in teaching a doctoral-level supervision course.

## **The Context**

The doctoral supervision course referenced below is housed in a full-time counseling program in a midsized university in the Southeast accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Doctoral students enroll in the didactic course during the fall semester of their 2nd year in the program, after having completed their required

clinical practicum and internships. They discuss readings of conceptual and empirical literature on required topics (CACREP, 2015, 6.B.2), participate in class activities such as role-plays, and review digital recordings of actual supervision sessions that illustrate various supervision interventions (e.g., use of recordings when giving feedback, interpersonal process recall), modalities (e.g., triadic supervision), and processes (e.g., supervisory relationship, cultural broaching). They also complete written projects (e.g., literature review on a supervision topic of their choice, supervision professional disclosure statement). Starting at midsemester, they complete a brief supervision practicum, providing three individual supervision sessions for two 1st-semester master's students who are conducting role-plays with classmates as part of a helping skills class. In the subsequent spring semester, they complete a supervision internship with master's students enrolled in counseling practicum, who are seeing volunteer undergraduate clients in the in-house clinic.

In subsequent sections, I describe application of the seven ScoL principles (Ambrose et al., 2010) in the didactic course, particularly around helping the doctoral students prepare for supervision practicum and internship. Since the principles are not functionally independent but interconnected, I include references to other principles in parentheses (e.g., Principle 3, motivation) when relevant. Importantly, not every aspect of each principle nor each suggested teaching activity offered by Ambrose et al. (2010) can be illustrated. Rather, it is hoped that the examples help stimulate readers' thinking about how they might incorporate some of this knowledge into their own work.

### **Principle 1: Students' Prior Knowledge Can Help or Hinder Learning**

Ambrose et al. (2010) emphasized that students arrive in the classroom with knowledge gained in previous courses and other educational experiences, as well as their own life experiences, and if that knowledge is active and accessible, they will make connections between prior knowledge and new knowledge. When those connections are accurate and relevant, students learn and retain more new knowledge, so instructors are encouraged to use strategies that activate these connections. However, if prior knowledge is insufficient, inappropriate, or inaccurate, connections to new knowledge may distort or interfere with learning (see diSessa, 2014; Taylor & Kowalski, 2014). Students' use of analogies based in prior knowledge and instructors' prompting such analogies are often quite helpful, as long as the instructor prompts students to consider not only similarities between the two but also the differences. Other suggested strategies include brainstorming or other exercises to reveal students' prior knowledge, explicitly linking new material to knowledge from previous courses, and asking students to make predictions based on their beliefs.

Two early course activities illustrate application of this principle. I use an activity in the first class session that is designed to activate prior knowledge relevant to supervision. I ask students to recall a positive supervision experience, and then together we generate a list of characteristics of those experiences. In a follow-up discussion, I link their lists to research about effective supervision, emphasizing important known skills and traits needed as supervisors (see Principle 3, motivation). Then, I ask a series of questions around their list, including when the supervision happened in their training, would they have wanted something different at another time (e.g., master's practicum vs. doctoral clinical internship), and if so, what those differences would be

and why. As a result of this discussion, they identify the developmental nature of supervision practice. In line with suggestions from Ambrose et al. (2010), I ask them to make predictions about what master's practicum students will need and implications for their role. The ensuing discussions have varied in focus, but often include realizations that they will probably be teaching supervisees many skills and that they have limited experience in a teacher role.

Early on, we watch a short segment of an actual counseling session, and students take notes as if they are going to meet with the counselor later that day. Given they typically generate extensive notes, I share the conclusion from cognitive science (Borders & Brown, 2005; Tangen & Borders, 2017) that their agenda likely should include no more than three topics and ask that they star their top three. After creating a starred top three list, I ask them to identify themes. Inevitably, themes related to skills, case conceptualization, self-awareness, and professional behaviors are generated, which means they have identified the focus areas in the discrimination model (Bernard, 1979; Lanning, 1986).

At the end of these two activities, students have a rudimentary mental map (Principle 2, organization) of this new enterprise based in the two major supervision models (e.g., developmental and discrimination models), which we expound upon with readings, future discussions, and exercises. They also have identified important and relevant learning goals for themselves (e.g., developing relevant teaching skills; Principle 3, motivation), feel less lost about what supervision is, and are more curious and motivated for future learning.

During these discussions, any connections students make to their previous roles (e.g., business coach, sports coach) are encouraged. Their beginning and ongoing comparisons and contrasts of these roles to their new supervisor role provide valuable analogies for learning.

### **Principle 2: How Students Organize Knowledge Influences How They Learn and Apply What They Know**

Students naturally organize new knowledge to enhance their memory and retrieval for solving problems (Ambrose et al., 2010). Without instructional interventions, novices can construct knowledge organizations that are simplistic and do not support effective performance using that knowledge. In contrast, experts have dense interconnections among concepts, skills, procedures, and other knowledge, which allow them to access (retrieve) that knowledge when needed and use it in more efficient and effective problem-solving. Experts' structures are based on deep characteristics or features of theories, examples, and problems. To encourage more elaborate knowledge organizations, suggested teaching interventions include providing students with an organizational structure (the "big picture") upfront that guides their incorporation of new knowledge, and then periodically referring back to that structure and relating it to new course topics. Having students do a compare-and-contrast analysis helps them identify underlying principles, which also helps to deepen their understanding of new knowledge and enhance their organizational maps. (See also Carretero & Lee, 2014; diSessa, 2014.)

As noted above (Principle 1, prior knowledge), the early activities around doctoral students' prior knowledge help them see the big picture and identify basic organizational frameworks (models) of supervision to guide their initial thinking about their new role. In subsequent classes,

we apply new knowledge to those models. For example, I pose questions such as the following: Where does this supervision intervention fit within the discrimination model matrix? Which of the supervision interventions are more appropriate for supervisees at early developmental levels? Which would you use with the supervisee in the recorded counseling session we watched in the earlier class? Why? Discussions based on questions such as these prompt students to consider their intentions and goals in using a particular supervision intervention, thus encouraging analysis of the models at a deeper level (Ambrose et al., 2010). I try to direct this discussion to include more awareness of how their counseling orientations influence their intervention and feedback choices (Principle 1, prior knowledge) and how the intentions of such choices are relevant to their supervision versus their counseling goals in using them. Similarly, questions posed in later class sessions help them begin to more critically analyze the models: What is missing in these models as described (e.g., interventions specifically designed to help students transition to higher developmental levels)? What other structures are needed (e.g., models of the supervisor relationship)? What descriptions of the supervisory relationship are you drawn to, and how do these reflect your counseling orientation preferences? How do you incorporate your evaluator role into your overall conceptualization of your role as a supervisor? Students are often enrolled in their first teaching internship during the same semester, which also bolsters their motivation (Principle 3) to explore these discussions around their conceptualization of the supervisor teacher role (from the discrimination model; Bernard, 1979; Bernard & Goodyear, 2014), thus deepening interconnections through comparison and contrast of underlying features of those roles.

### **Principle 3: Students' Motivation Determines, Directs, and Sustains What They Do to Learn**

Motivation refers to students' personal investment in a desired outcome or goal. Motivation is strongly influenced by the value that students put on the goal as well as their outcome expectancies (i.e., self-efficacy; Ambrose et al., 2010). Suggested strategies include connecting new material to students' interests and professional goals (instrumental value), engaging them in "authentic, real-world tasks" (Ambrose et al., 2010, p. 83), rewarding what you say you value, demonstrating passion and enthusiasm for the discipline, creating assignments at an appropriate level of challenge so that students experience early success with new tasks, providing targeted feedback, and giving students opportunities to reflect on what they are learning. (See also Järvelä & Renninger, 2014.)

At first read, it may seem that students' motivation would be a nonissue in a doctoral course, and I have seldom found it to be a pivotal issue (the exceptions would be those who have had particularly negative experiences as a supervisee or supervisor previously and are unsure they want to take on this role). They typically value the goals of the course, a key component of motivation (Ambrose et al., 2010), primarily because they see the connection between the course and their professional goals (instrumental value), as well as the connections between supervision knowledge and skills and their upcoming supervision practicum and internship. Where I can enhance their motivation is around their expectancies—their beliefs that they can succeed in learning supervision knowledge and skills. Some methods for doing this, based in ScoL (Ambrose et al., 2010), include the following: reminding them of their success in a related activity (e.g., if they had similar feelings when they started their master's counseling program)

and the relevance of their prior knowledge to learning to be a supervisor; identifying and rewarding what I value (e.g., challenging themselves to try new skills in the corequisite supervision practicum and making their trying new skills a basis for evaluation); providing early, low-risk success opportunities (e.g., role-plays in class, the brief practicum supervising volunteer [i.e., motivated] master's students in their helping skills course with no evaluation responsibilities); attributing their progress (including small steps toward goals, such as implementation of a supervision intervention) to their persistence and self-challenges (controllable causes), particularly if they attribute progress (or lack of progress) to external or uncontrollable causes (e.g., easy or cooperative supervisee); and allowing options for topics for the literature review project so they can make it relevant to their interests.

#### **Principle 4: To Develop Mastery, Students Must Acquire Component Skills, Practice Integrating Them, and Know When to Apply What They Have Learned**

Component skills refer to the steps, subskills, and knowledge needed to complete a complex task, including recognizing when to apply which component skills (Ambrose et al., 2010). Thus, students must acquire declarative knowledge (i.e., ability to recall facts, concepts, theories), procedural knowledge (i.e., how to apply that knowledge), conditional (or contextual) knowledge (i.e., when to apply that knowledge), and conceptual knowledge (i.e., why it is appropriate in a particular situation). Mastery of knowledge and skills involves three elements: (a) acquiring key component skills, including isolated practice of those that are especially underdeveloped to help manage the cognitive load demands of a complex task; (b) integrating component skills through repeated and varied practice; and (c) knowing when, where, and why to apply the skills (Ambrose et al., 2010). The ultimate goal is the transfer of knowledge and skills learned in the classroom to a different context—in this case, the supervision practicum and internship. The biggest challenge for supervision instructors may be to “unpack” or “decompose” (Ambrose et al., 2010, p. 100) the component skills of a complex supervision task because, due to their relative expertise in using the skills automatically and fluently, instructors are no longer consciously aware of some of the component skills, known as the “expert blind spot” (p. 99). The same is likely at least somewhat true for doctoral supervisors, who have much more counseling knowledge and skills than their beginning master's-level supervisees. Suggested strategies (Ambrose et al., 2010) include providing isolated practice for underdeveloped skills, scaffolding practice with new skills as a way to reduce the complexity of the task (i.e., minimize cognitive load), providing opportunities to practice in multiple settings and contexts, using comparisons to help students identify deep and/or larger principles, asking students what skills and knowledge would be needed in a hypothetical case, asking students “what if” questions, and providing prompts to help them connect to relevant knowledge and skills. (See also Reiser & Tabak, 2014.)

The students' future supervisees will have learned basic helping skills in their course, but applying them in counseling sessions, as implied by Principle 4, will require understanding them in new and more complex ways (e.g., when and why to apply them). In the context of the supervision classroom, my task is to teach doctoral students how to scaffold, or how to identify components of counseling skills as well as methods for practicing those components with their supervisees. Given that all master's students seem to struggle with some aspect of reflecting feelings, I use that skill as the instructional example. One example activity is watching a brief

segment of a counseling session in which it would have been appropriate for the counselor to reflect feelings. At the point of an appropriate reflection, I ask the students questions such as “How did you realize that feeling?” and “Why that feeling word?” and “Why now?” Gradually, we construct the sequence of component skills for reflecting feelings (e.g., from recognizing emotional cues to choosing the most appropriate emotion word). Then, we brainstorm how they could identify which of the component skills the supervisee particularly needs to work on (e.g., watching the tape segment several times to identify the supervisee’s observations and thought processes). This discussion also may include identifying a tape segment for supervisee practice that is not too challenging for the supervisee (e.g., the emotion is not too complex). (See Tangen, 2017, for more extended examples.) This process can be repeated as a class or in small groups to break down other counseling skills.

Students almost always have the opportunity to apply scaffolding with their practicum supervisees, so are able to practice this skill in a different context, in line with Ambrose et al.’s (2010) suggestion. In addition, during individual and group supervision during the course (and subsequent semester internship), they can be asked to talk about whether they addressed the same topic differently with their two supervisees and, if so, why; and to brainstorm the pros and cons of interventions they might use in their next sessions. To get at underlying deep features, they also are asked to consider “what if” questions (e.g., What could happen in the next supervision session that would make them change their minds about an intervention choice? What potential cultural factors might influence their decision?) Around more didactic new knowledge, during ethics discussions, they are asked to access prior knowledge of ethical standards (Principle 1, prior knowledge) and then compare and contrast ethical issues (i.e., confidentiality), conceptually and practically, between counseling and supervision contexts (e.g., how confidentiality would be addressed in supervisor vs. counselor professional disclosure statements).

### **Principle 5: Goal-Directed Practice Coupled With Targeted Feedback Enhances the Quality of Students’ Learning**

For this fifth principle, Ambrose et al. (2010) drew heavily from research on deliberate practice in the expertise literature (e.g., Ericsson, 2006), an area that has recently been applied to counseling and supervision (e.g., Goodyear & Rousmaniere, 2017). Deliberate practice involves the cycle of working toward a specific goal that is challenging but reasonable, receiving targeted feedback about how one’s performance does and does not achieve that goal, and engaging in further practice based on that feedback, a process akin to one-on-one tutoring. Ambrose et al. noted that goals should be stated in terms of what students should do so that their performance can be monitored and feedback can be focused. Effective feedback informs students what they are doing well and where their performance falls short of the goal, along with specific actions they can take to improve in those areas needing further practice. Feedback is timely, frequent, and prioritized around component skills to avoid overwhelming students (e.g., to manage cognitive load). Peer feedback can be helpful if structured. (See also Hattie & Yates, 2014.)

In addition to suggestions around feedback, relevant strategies (Ambrose et al., 2010) include scaffolding assignments, providing multiple practice opportunities, showing models of the



targeted skills as well as examples of what is not wanted, looking for patterns of errors in students' work, and requiring students to specify how they used feedback in subsequent practice.

Providing feedback, especially corrective feedback, can be quite challenging for novice supervisors (e.g., Borders et al., 2017; Gazzola et al., 2013; Rapisarda, Desmond, & Nelson, 2011). Thus, in addition to readings and discussion, ample time for practice with immediate feedback during the supervision course is critical. We start with practice in class. Using the counseling session recording reviewed in an earlier class (Principle 1, prior knowledge), we choose a discrete skill the counselor needs to improve, state a goal based on the counselor's performance, and then develop targeted feedback as described above. Students role-play delivering that feedback (taking turns being supervisee and supervisor) using Ambrose et al.'s (2010) guidelines: (a) stating what the supervisee did well; (b) identifying one change that would improve the supervisee's performance of the specified skill (i.e., a component of the skill that could be better); (c) using the counseling session recording to illustrate the difference between what the supervisee did and what the supervisor suggests doing; (d) conducting a practice role-play based on the supervisor's suggestion; and (e) providing feedback about the supervisee's performance in the role-play. Students in the role-play, their observing peers, and I can take a time-out for help and suggestions, then run a "do-over" role-play based on the feedback. These role-plays typically reveal common errors that identify what not to do—a type of targeted feedback in line with one of Ambrose et al.'s suggestions—which informs my debriefing discussions with students after the role-plays. Similarly, when presenting one of their supervision practicum sessions in class (group supervision), students are required to focus on a segment in which they gave feedback to the counseling student; peer feedback includes how well the supervisor employed Ambrose et al.'s suggested sequence. Students often also raise "what if" questions around hypothetical supervisee responses, especially less positive responses, that help bring in discussion from other class topics (e.g., the supervisor relationship, cultural influences; Principle 2, organization, and Principle 4, component skills).

### **Principle 6: Students' Current Level of Development Interacts With the Social, Emotional, and Intellectual Climate of the Course to Impact Learning.**

Ambrose et al.'s (2010) attention in this principle is focused on traditional-age college students and how their social, emotional, and intellectual developmental growth during their college years can influence in-class behaviors. They also emphasize creating inclusive classroom climates. Suggested strategies include making uncertainty safe, emphasizing that consensus is not the goal in class discussions and setting ground rules for discussions upfront, being mindful of low-ability cues (e.g., math instructor only offering extra help to female students), not asking individuals to speak for an entire group, using diverse examples, and facilitating active listening. (See also Nasir, Rosebery, Warren, & Lee, 2014.)

Most counseling doctoral students have previously studied relevant developmental theories (e.g., psychosocial) and multicultural counseling. The focus, then, is transferring their prior knowledge (Principle 1, prior knowledge) and mental maps of this knowledge (Principle 2, organization) to predicting (Principle 1, prior knowledge) how these issues may come up with their master's supervisees during the supervision practicum and internship.

In choosing segments of supervision session recordings to illustrate class topics, I am intentional about including diverse supervisor–supervisee pairs to invite discussion of culture. During discussions, I ask them to draw on their experiences as supervisees to predict (Principle 1, prior knowledge) how their own supervisees may struggle to broach culture with their clients, and how comfortable their supervisees may be giving feedback about culture to peers in group supervision. We also discuss how the intentions and goals of broaching culture with supervisees are similar to and different from those for broaching with clients (Principle 2, organization). During in-class group supervision of the supervision practicum, the cultural considerations role is included in the structured model used to provide feedback (Borders, 1991b; Lassiter, Napolitano, Culbreth, & Ng, 2008). In line with Ambrose et al.’s (2010) suggestion, a stated goal of our group supervision is to enrich each other’s thinking, not find one “right” answer.

### **Principle 7: To Become Self-Directed Learners, Students Must Learn to Monitor and Adjust Approaches to Learning**

Principle 7 is the culmination of all preceding principles, as the ultimate ScoL goal is *metacognition*, or students’ ability to reflect on and direct their own thinking (Ambrose et al., 2010) and learning. Ambrose et al. (2010) identified five metacognitive processes students need to learn: (a) assess the task based on its goals and thus the corresponding demands for completing the task; (b) evaluate their ability to complete the task based on strengths and weaknesses related to the knowledge and skills required to complete the task; (c) make a plan for completing the task; (d) apply strategies based on the plan and monitor progress and success in accomplishing the task; and (e) periodically reflect on how well their approach is working and adjust their strategies and plan as needed. These monitoring activities are critical to developing *adaptive expertise* (Hatano & Inagaki, 1986), defined as the ability “to approach new situations flexibly and to learn throughout” (Bransford et al., 2000, p. 48) one’s professional career (see also Girash, 2014; Winne & Azevedo, 2014).

Suggested strategies for instructors (Ambrose et al., 2010) include making sure that students understand the task, providing (ungraded) opportunities to practice self-assessment, and giving them a plan that includes a timeline for completing various stages of a project (i.e., model effective planning). Requiring students to reflect on work (e.g., explain what they did and why), having them discuss pros and cons of multiple strategies for solving a problem, helping students set realistic goals, and “thinking aloud” (Borders & Brown, 2005) to illustrate your own metacognitive processes are also important.

I implement several of Ambrose et al.’s (2010) suggestions for helping students learn how to reflect on and self-direct their learning. We spend a number of weeks on supervision models, assessing supervisees, and generating learning goals for supervision before we begin study of feedback and supervision interventions. When asked about the implications of this sequence, students typically notice the emphasis on clarifying the desired outcomes (learning objectives) for a supervision session before choosing a strategy. In addition, at the beginning, middle, and end of the semester, students write brief reflections (ungraded except for credit for completion) around questions such as their current view or definition of supervision, conceptualization of themselves in the supervisor role, what feels familiar and what feels new in that role, and burning questions they wish were already answered.

The outline for supervision case notes, submitted for students' supervision practicum sessions, require that they report what the goals or learning objectives were for that session as well as the rationale for supervision interventions they chose to work toward those goals. The tape review form, completed for the supervision session they submit for an individual supervision, includes a number of questions that ask them to reflect on their work; they must answer at least three of these. Examples include the following: What questions did you ask yourself during the session? Was there anything you wanted to say but didn't say? Why? Was there anything you wish you had done differently in this session? Why?

Finally, I use thinking aloud (Ambrose et al., 2010; Borders & Brown, 2005) to model my own planning and reflective processes in several ways. When I show students recordings of my own supervision sessions with counselors, I first explain my goals and plan, and then stop the recording periodically to share my in-session thoughts at that moment in the supervision meeting, including examples of when I realized that my plan was not working and how I thought through needed changes.

## **Discussion**

Supervision standards (e.g., CACREP, 2015) and best practices (Borders et al., 2014) specify what topics should be covered in supervision education, such as a doctoral-level course. ScoL provides another needed component: how to cover these topics in ways that encourage students to acquire new knowledge and skills "more deeply and more effectively" (Sawyer, 2014, p. 1). ScoL principles highlight how the students learn and, with discussion of the principles with these new supervisors, how to transfer them effectively to their supervision work. ScoL provides a manageable and evidence-based avenue for incorporating learning theories and processes into supervision instruction.

Instructional examples provided in this article are not revolutionary. In fact, I used several of them long before I began reading about ScoL. This new knowledge, however, has greatly increased my intentionality in how I present activities. In addition, I now talk about what I am doing and why, not only because doing so is in line with ScoL instructional strategies (e.g., Principle 7, metacognition), but also to encourage discussion of how students may apply the ScoL principles with their supervisees. It is likely that other supervision educators also will find some of their instructional approaches are in line with ScoL principles, given that ScoL incorporates many aspects of learning theories and teaching practices counselor educators seem to prefer (e.g., transformational, constructivist, experiential; Barrio Minton et al., 2014).

Deliberate attention to ScoL is fairly recent in my planning and delivery of instruction in the supervision classroom. To date, then, I only have anecdotal and observational data to support use of ScoL in my supervision course. Conceptually, doctoral students certainly see the corollary of using learning theory and principles to inform their supervision practice with counseling theory to direct their clinical work. Practically, they have made comments to me such as "I don't think I broke down this skill enough for my supervisee" and request help with scaffolding. With their supervisees, they more regularly ask questions such as "What did you learn about broaching in your multicultural counseling course that's relevant to this client?" to help supervisees access

their prior knowledge and also to assess what gaps in that knowledge and skill need to be addressed. More structured examinations of the impact of ScoL teaching, however, are needed to ascertain the benefits for novice supervisors, as well as their supervisees.

Consideration of ScoL research, particularly studies of teacher education (e.g., Bransford et al., 2000; Fishman, Davis, & Chan, 2014), might offer some directions for research on supervision instruction. ScoL researchers use a range of methodologies, both quantitative (experimental) and qualitative (e.g., ethnography, conversation analysis; Sawyer, 2014). Because they are interested in “the minute-by-minute structure of the classroom activity that leads to student learning” (Sawyer, 2014, p. 13), they often analyze videotapes of classrooms to identify how learners interact with each other, how learners solve problems, and how these processes change over time. Collaborations with colleagues in teacher education programs and others studying learning (e.g., cognitive and educational psychologists, computer scientists, sociologists) could be helpful for informing research on ScoL in the supervision classroom. Some specific ScoL components that seem particularly promising to investigate include analysis of videotapes of students’ scaffolding in their supervision sessions, examination of their in-session thoughts (metacognition) via a thinking- aloud protocol (Borders, 1991a), and changes in their reflections about some aspect of their role over time (e.g., their approach to final evaluation sessions). The broader goal would be to examine whether, and how, ScoL-oriented supervision instruction contributes to effectiveness of supervisors and, subsequently, their counselors. Such studies might help address critiques of supervision training research as “unfocused and atheoretical” (Gosselin et al., 2015, p. 388) and lacking in rigor (e.g., Gosselin et al., 2015; Watkins, 2012). Application and examination of ScoL principles in other supervision contexts also might be fruitful, including supervision of supervision, supervision training for master’s-level practitioners, as well as supervision practice itself. Consideration of the implications of ScoL for teaching other master’s and doctoral counseling courses also might be relevant.

Professionals who want to experiment with ScoL principles in their teaching and supervision can apply the principles to their own learning (cf. Ambrose et al., 2010; Bransford et al., 2000). This would include becoming aware of their own prior knowledge, and assumptions based in that knowledge, around how people learn, as well as counseling and supervision knowledge (Principle 1, prior knowledge). They might begin do this through monitoring their thought processes and decision-making while preparing for, conducting, and evaluating teaching and supervision situations. Videotaping one’s teaching and supervision, then watching and reflecting on those sessions alone or with a colleague, could identify where and when one already employs ScoL principles, as well as opportunities for enhancing that work (Principle 7, metacognition). New ideas may need to be divided into component skills that can be practiced individually before implementing the larger task (Principle 4, component skills). Then, both student feedback and self-assessments (Principle 7, metacognition) would be important, perhaps supplemented by colleagues’ input, thus implementing steps of deliberate practice (Principle 5, goal-directed practice).

ScoL is still evolving, especially regarding influences of technology and neuroscience on learning (Sawyer, 2014) and how culture affects the learning process (Bransford et al., 2000; Nasir et al., 2014). Counselor educators who employ ScoL principles in the classroom and supervision, as well as their research, could contribute not only to future developments in ScoL,

but also the call to address the “disconnect between teaching and research” in the counseling field (ACES Teaching Initiative Taskforce, 2016, p. 5).

Ultimately, exploration of ScoL, conceptually and empirically, may help build toward supervision theory, now sorely lacking, that explains how learning occurs in supervision and how best to support such learning toward both counseling competence and counseling expertise (Goodyear & Rousmaniere, 2017). Perhaps at that point, clinical supervision may truly be considered and understood as a “signature pedagogy” (Bernard & Goodyear, 2014, p. 2) in counseling.

## References

- ACES Teaching Initiative Taskforce. ( 2016). Best practices in teaching in counselor education report 2016. Retrieved from <http://www.acesonline.net/resources/aces-teaching-initiative-taskforce-report-october-2016>
- Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. ( 2010). *How learning works: 7 research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.
- Bain, K. ( 2004). *What the best college teachers do*. Cambridge, MA: Harvard University Press.
- Baltrinic, E. R., Barrio Minton, C., & Wood, S. ( 2016). Doctoral level teaching preparation for counselor educators. In ACES Teaching Initiative Taskforce, Best practices in teaching in counselor education report 2016 (pp. 30– 37). Retrieved from <http://www.acesonline.net/resources/aces-teaching-initiative-taskforce-report-october-2016>
- Barrio Minton, C. A., Wachter Morris, C. A., & Yaites, L. D. ( 2014). Pedagogy in counselor education: A 10-year content analysis of journals. *Counselor Education and Supervision*, **53**, 162– 177. doi:[10.1002/j.1556-6978.2014.00055.x](https://doi.org/10.1002/j.1556-6978.2014.00055.x)
- Benassi, V. A., Overson, C. E., & Hakala, C. M. (Eds.). ( 2014). *Applying science of learning in education: Infusing psychological science into the curriculum*. Washington, DC: Society for the Teaching of Psychology.
- Bernard, J. M. ( 1979). Supervisor training: A discrimination model. *Counselor Education and Supervision*, **19**, 60– 68. doi:[10.1002/j.1556-6978.1979.tb00906.x](https://doi.org/10.1002/j.1556-6978.1979.tb00906.x)
- Bernard, J. M., & Goodyear, R. K. ( 2014). *Fundamentals of clinical supervision* ( 5th ed.). Boston, MA: Pearson.
- Bernard, J. M., & Luke, M. ( 2015). A content analysis of 10 years of clinical supervision articles in counseling. *Counselor Education and Supervision*, **54**, 242– 257. doi:[10.1002/ceas.12024](https://doi.org/10.1002/ceas.12024)
- Blumberg, P. ( 2011). Making evidence-based practice an essential aspect of teaching. *Journal of Faculty Development*, **25**, 27– 32.

Borders, L. D. ( 1991a). Supervisors' in-session behaviors and cognitions. *Counselor Education and Supervision*, **31**, 32– 47. doi:[10.1002/j.1556-6978.1991.tb00369.x](https://doi.org/10.1002/j.1556-6978.1991.tb00369.x)

Borders, L. D. ( 1991b). A systematic approach to peer group supervision. *Journal of Counseling & Development*, **69**, 248– 252. doi:[10.1002/j.1556-6676.1991.tb01497.x](https://doi.org/10.1002/j.1556-6676.1991.tb01497.x)

Borders, L. D., & Brown, L. L. ( 2005). *The new handbook of counseling supervision*. Mahwah, NJ: Lahaska/Erlbaum.

Borders, L. D., Glosoff, H. L. Welfare, L. E., Hays, D. G., DeKruyf, L., Fernando, D. M., & Page, B. ( 2014). Best practices in clinical supervision: Evolution of a counseling specialty. *The Clinical Supervisor*, **33**, 26– 44.

Borders, L. D., Welfare, L. E., Sackett, C. R., & Cashwell, C. S. (2017). New supervisors' struggles and successes with corrective feedback. *Counselor Education and Supervision*, **56**, 208– 224. doi:[10.1002/ceas.12073](https://doi.org/10.1002/ceas.12073)

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). ( 2000). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.

Carretero, M. & P. Lee ( 2014). Learning historical concepts. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp. 587– 604). New York, NY: Cambridge University Press.

Council for Accreditation of Counseling and Related Educational Programs. ( 2015). *2016 CACREP standards*. Alexandria, VA: Author.

Deans for Impact. ( 2015). *The science of learning*. Austin, TX: Author.

diSessa, A. A. ( 2014). A history of conceptual change research: Threads and fault lines. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp. 88– 108). New York, NY: Cambridge University Press.

Ericsson, K. A. ( 2006). The influence of experience and deliberate practice on the development of superior expert performance. In K. A. Ericsson, N. Charness, P. J. Feltovich, & R. R. Hoffman (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 683– 793). Cambridge, England: Cambridge University Press.

Falender, C. A., Cornish, J. A. E., Goodyear, R., Hatcher, R., Kaslow, N. J., Leventhal, G., & Grus, C. ( 2004). Defining competencies in psychology supervision: A consensus statement. *Journal of Clinical Psychology*, **60**, 771– 785.

Fishman, B. J., Davis, E. A., & Chan, D. K. K. ( 2014). A learning sciences perspective on teacher learning and research. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 707– 725). New York, NY: Cambridge University Press.

Gazzola, N., De Stefano, J., Thériault, A., & Audet, C. T. ( 2013). Learning to be supervisors: A qualitative investigation of difficulties experienced by supervisors-in-training. *The Clinical Supervisor*, **32**, 15– 39.

Girash, J. ( 2014). Metacognition and instruction. In V. A. Benassi, C. E. Overson, & C. M. Hakala(Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum* (pp.152– 168). Washington, DC: Society for the Teaching of Psychology.

Goodyear, R. K., & Rousmaniere, T. ( 2017). Helping therapists to each day become a little better than they were the day before: The expertise-developmental model of supervision and consultation. In T. Rousmaniere, R. K. Goodyear, S. D. Miller, & B. E. Wampold (Eds.), *The cycle of excellence: Using deliberate practice to improve supervision and training* (pp. 67– 95). Hoboken, NJ: Wiley.

Gosselin, J., Barker, K. K., Kogan, C. S., Pomerleau, M., & Pitre de'loro, M.-P. ( 2015). Setting the stage for an evidence-based model of psychotherapy supervisor development in clinical psychology. *Canadian Psychology*, **56**, 379– 393.

Hatano, G., & Inagaki, K. ( 1986). Two courses of expertise. In H. Stevenson, H. Azuma, & K. Hakuta(Eds.), *Child development and education in Japan* (pp. 262– 272). New York, NY: Freeman.

Hattie, J. A. C., & Yates, G. C. R. ( 2014). Using feedback to promote learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum* (pp. 45– 58). Washington, DC: Society for the Teaching of Psychology.

Järvelä, S., & Renninger, K. A. ( 2014). Designing for learning: Interest, motivation, and engagement. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp.668– 685). New York, NY: Cambridge University Press.

Kleist, D. M. ( 2016). Developing a teaching philosophy. In ACES Teaching Initiative Taskforce, *Best practices in teaching in counselor education report 2016* (pp. 58– 65). Retrieved from <http://www.acesonline.net/resources/aces-teaching-initiative-taskforce-report-october-2016>

Lang, J. M. ( 2016). *Small teaching: Everyday lessons from the science of learning*. San Francisco, CA: Jossey-Bass.

Lanning, W. ( 1986). Development of the Supervisor Emphasis Rating Form. *Counselor Education and Supervision*, **25**, 191– 196. doi:[10.1002/j.1556-6978.1986.tb00667.x](https://doi.org/10.1002/j.1556-6978.1986.tb00667.x)

Lassiter, P. S., Napolitano, L., Culbreth, J. R., & Ng, K.-M. ( 2008). Developing multicultural competence using the structured peer group supervision model. *Counselor Education and Supervision*, **47**, 164– 178. doi:[10.1002/j.1556-6978.2008.tb00047.x](https://doi.org/10.1002/j.1556-6978.2008.tb00047.x)

Malott, K. M., Hall, K. H., Sheely-Moore, A., Krell, M. M., & Cardaciotto, L. ( 2014). Evidence-based teaching in higher education: Application to counselor education. *Counselor Education and Supervision*, **53**, 294– 305. doi:[10.1002/j.1556-6978.2014.00064.x](https://doi.org/10.1002/j.1556-6978.2014.00064.x)

Nasir, N. S., Roseberry, A. S., Warren, B., & Lee, C. D. ( 2014). Learning as a cultural process: Achieving equity through diversity. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp. 686– 706). New York, NY: Cambridge University Press.

Olds, K., & Hawkins, R. ( 2014). Precursors to measuring outcomes in clinical supervision: A thematic analysis. *Training and Education in Professional Psychology*, **8**, 158– 164.

Rapisarda, C. A., Desmond, K. J., & Nelson, J. R. ( 2011). Student reflections on the journey to being a supervisor. *The Clinical Supervisor*, **30**, 109– 123.

Reiser, B. J., & Tabak, I. ( 2014). Scaffolding. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp. 44– 62). New York, NY: Cambridge University Press.

Sawyer, R. K. (Ed.). ( 2014). *The Cambridge handbook of the learning sciences*. New York, NY: Cambridge University Press.

Schunk, D. H. ( 2016). *Learning theories: An educational perspective* ( 7th ed.). Boston, MA: Pearson.

Sheely-Moore, A. I. ( 2016). Adult learning: Theory and models. In ACES Teaching Initiative Taskforce, Best practices in teaching in counselor education report 2016 (pp. 10– 18). Retrieved from <http://www.acesonline.net/resources/aces-teaching-initiative-taskforce-report-october-2016>

Swoboda, D. ( 2014). Applying evidence-based principles of learning to teaching practice: The Bridging the Gap seminar. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum* (pp. 206– 214). Washington, DC: Society for the Teaching of Psychology.

Tangen, J. L. ( 2017). Attending to nuanced emotions: Fostering supervisees' emotional awareness and complexity. *Counselor Education and Supervision*, **56**, 65– 78. doi:[10.1002/ceas.12060](https://doi.org/10.1002/ceas.12060)

Tangen, J. L., & Borders, L. D. ( 2017). Applying information processing theory to supervision: An initial exploration. *Counselor Education and Supervision*, **56**, 98– 111. doi:[10.1002/ceas.12065](https://doi.org/10.1002/ceas.12065)

Taylor, A. K., & Kowalski, P. ( 2014). Student misconceptions: Where do they come from and what can we do? In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum* (pp. 259– 273). Washington, DC: Society for the Teaching of Psychology.



Vygotsky, L. S. ( 1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Watkins, C. E. ( 2012). Educating psychotherapy supervisors. *American Journal of Psychotherapy*, **66**,279– 307.

Watkins, C. E. ( 2017). Convergence in psychotherapy supervision: A common factors, common processes, common practices perspective. *Journal of Psychotherapy Integration*, **27**, 140– 152.

Winne, P. H., & Azevedo, R. ( 2014). Metacognition. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* ( 2nd ed., pp. 63– 87.). New York, NY: Cambridge University Press.